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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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EXAMINER

NORRIS, JEREMY C

ART UNIT

PAPER NUMBER

2827

DATE MAILED: 11/05/2002

Please find below and/or attached an Office communication concerning this application or proceeding.

**Office Action Summary**

Application No.

09/963,640

Applicant(s)

HACHIYA, SHOGO

Examiner

Jeremy C. Norris

Art Unit

2827

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 07 August 2002.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-23 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-23 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 27 September 2001 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on \_\_\_\_\_ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

**Priority under 35 U.S.C. §§ 119 and 120**

- 13) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some \* c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

**Attachment(s)**

- 1) ☐ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) \_\_\_\_\_
- 4) ☐ Interview Summary (PTO-413) Paper No(s). \_\_\_\_\_
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: \_\_\_\_\_

## **DETAILED ACTION**

### ***Claim Rejections - 35 USC § 112***

Claims 1-14 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claims 1 and 9 state the limitation "the longitudinal length of the rectangular hole may be adjustable along a longitudinal length of the pad". This limitation is indefinite as it is unclear as to whether the length *must* have an adjustable property, since Applicant uses the phrase "may be". Examiner interprets this to mean that this is an optional property and not required for the invention.

### ***Claim Rejections - 35 USC § 102***

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims 1, 2, 9, 10, 15, 16, and 19 are rejected under 35 U.S.C. 102(b) as being anticipated by JP 6-260773 (hereafter JP '773).

JP '773 discloses, referring to figure 1, a circuit board for transmitting signals comprising: a dielectric layer (23a); a signal line (21) configured as a pattern on the dielectric layer to transmit the signals; a pad (24) formed on the dielectric layer, the pattern connected to and extending away from the pad; and a ground/power supply layer (22a) formed under the dielectric layer and having a rectangular hole (25) below

the pad, the hole extending in a direction substantially parallel with a direction of the pattern extending away from the pad and the rectangular hole may be adjustable along a longitudinal length of the pad [claims 1, 9], wherein the pad has a width wider than a width of the pattern [claim 15], wherein the hole is formed outside an imaginary line extending the pattern [claims 2, 10, 16], wherein the signals are high speed signals [claim 19].

***Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 3-8, 11-14, 17, 18, and 20-23 are rejected under 35 U.S.C. 103(a) as being unpatentable over JP '773 in view of US 6,184,478, granted to Imano et al. (hereafter US '478).

JP '773 discloses the claimed invention as described above except JP '773 does not specifically state: that the holes has a width wider than that of the pattern and narrower than that of the pad [claims 3, 11, 17]; that the hole comprises a pair of holes formed below the pad outside imaginary lines extending the pattern and a third rectangular hole formed between the imaginary lines [claims 4, 12, 18]; that the hole comprises a plurality of rectangular holes formed below the pad outside imaginary lines extending the pattern [claims 5, 13, 20], wherein each of the holes spreads in a width direction of the pad at a junction of the pad and the pattern [claims 6, 21], wherein each

of the holes narrows in a width direction of the pad at an edge of the pad remote from a junction of the pattern and pad [claims 7, 22]; that the hole is rectangular and formed between imaginary lines extending from the pattern [claims 8, 14, 23]. However, JP '773 does teach that the purpose of the hole is to control the characteristic impedance of the device. To this end, US '478 teaches varying the size and placement of holes in a ground/power layer, beneath a signal layer to control the characteristic impedance of the signal layer to a desired value (see col. 4, lines 30-65). Therefore, it would have been obvious, to one having ordinary skill in the art, at the time of invention, to make any of the above modifications to the invention of JP '773 as taught by US '478. The motivation for doing so would have been to control the impedance of the device and reduce the possibility of signal degradation due to cross-talk. Moreover, it has been held that discovering the optimum value of a result effective variable involves only routine skill in the art. *In re Boesch*, 617 F. 2d 272, 205 USPQ 215 (CCPA 1980).

### ***Response to Arguments***

Applicant's arguments filed 7 August 2002 have been fully considered but they are not persuasive. Applicant argues that the rejection of the claims as stated in the Office Action of Paper 4 is in error because the applied references fail to teach all the claimed limitations. Specifically, regarding claims 1, 9, and 15, Applicants allege that the applied prior art fails to disclose or suggest "a ground/power supply layer formed under [a] dielectric layer and having a rectangular hole below [a] pad, wherein a longitudinal length of the rectangular hole extends in a direction substantially parallel with a direction of [a] pattern extending away from the pad and the longitudinal length of

the rectangular hole may be adjustable along a longitudinal length of the pad". In support of this allegation, Applicants refer to figure 4 of JP '773. However, even assuming *en arguendo*, that Applicants' characterization of figure 4 is true, Examiner points to figure 1 of JP '773 where it is clearly shown that the hole (25) is rectangular in shape, having the longitudinal length extending in a direction parallel to the direction of the pattern (21) extending from the pad. Since figure 1 clearly displays the disputed limitation, the traversal is deemed to be unsuccessful.

Regarding all other remaining claims, Applicants have not provided additional arguments towards their patentability, relying solely on the arguments directed to the base claims. Since those arguments have been addressed above, all traversals have been rebutted.

### ***Conclusion***

**THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).


A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Jeremy C. Norris whose telephone number is 703-306-5737. The examiner can normally be reached on Mon.-Th., 9AM - 6:30 PM and alt. Fri. 9AM-5:30PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, David L. Talbott can be reached on 703-305-9883. The fax phone numbers for the organization where this application or proceeding is assigned are 703-308-0725 for regular communications and 703-308-0725 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 703-308-0956.

JCSN  
October 29, 2002

 11-4-02  
ALBERT W. PALADINI  
PRIMARY EXAMINER